Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for an apparatus receiving ~~an optimal~~a pilot pattern, comprising:

storing ~~column~~ pilot pattern sequences demodulated ~~and~~ and/or inputted by slots ~~in~~ of a frame ~~unit in detecting~~for at least one of channel estimation ~~and~~ or frame synchronization for at least one of uplink channel ~~upward and~~ or ~~downward link channels~~downlink channel, wherein the pilot pattern sequences have a relation based on one or both of the following;

(1) $$\sum_{i=1}^{\alpha} R_i(\tau) = \begin{cases} \alpha \cdot 15, & \tau = 0 \\ -\alpha, & \tau \neq 0 \end{cases}, \quad \alpha = 1,2,3,\ldots,8$$

where $\propto = 1, 2, 3, \ldots, 8$ and $R_i(\tau)$ is representative of a first correlation function of the each pilot pattern sequence;

(2) $$\sum_{i=1}^{\alpha/2} (R_{2i-1,2i}(\tau) + R_{2i,2i-1}(\tau+1)) = \begin{cases} -\alpha \cdot 15, & \tau = 7 \\ \alpha, & \tau \neq 7 \end{cases}, \quad \alpha = 2,4,6,8$$

where α = 2, 4, 6, 8 and $R_{2i-1,\ 2i}(\tau)$ and $R_{2i,\ 2i-1}$ are representative of a second correlation function between a pair of pilot pattern sequences, and $i \geq 1$

~~converting the stored column sequences according to a pattern characteristic related to each sequence by using the pattern characteristic obtained from the relation between the column sequences;~~

~~adding the converted column sequences by slots; and~~

~~performing a correlation process of the added result to a previously designated code column~~.

2. (Canceled).

3. (Currently Amended) An apparatus receiving ~~an optimala~~ pilot pattern comprising:

a memory ~~mapping/addressing~~mapping and/or addressing block for ~~converting column~~storing pilot pattern sequences ~~inputted/demodulated~~inputted and/or demodulated by slots, wherein the pilot pattern sequences have a relation based on one or both of the following:

(1)

$$\sum_{i=1}^{\alpha} R_i(\tau) = \begin{cases} \alpha \cdot 15, & \tau = 0 \\ -\alpha, & \tau \neq 0 \end{cases}, \quad \alpha = 1,2,3,...,8$$

where $\propto$ = 1, 2, 3, . . . , 8 and $R_i(\tau)$ is representative of a first correlation function of the each pilot pattern sequence and $i \geq 1$

(2) $$\sum_{i=1}^{\alpha/2}(R_{2i-1,2i}(\tau)+R_{2i,2i-1}(\tau+1))=\begin{cases}-\alpha\cdot 15, & \tau=7\\ \alpha, & \tau\neq 7\end{cases}, \quad \alpha=2,4,6,8$$

where $\propto$ = 2, 4, 6, 8 and $R_{2i-1,\ 2i}(\tau)$ and $R_{2i,\ 2i-1}$ are representative of a second correlation function between a pair of pilot pattern sequences, and $i \geq 1$

~~according to a defined pattern characteristic based on a relation between the column sequences;~~

~~an adder for adding the converted outputs from the memory mapping/addressing block; and~~

~~a correlator for performing a correlation process of the added result to a previously designated code column.~~

4. (Canceled).

5. (Canceled).

6. The method of claim 41, wherein $2 \leq i \leq 8$.

7. (Canceled).

8. (Canceled).

9. The apparatus of claim ~~7~~3, wherein $2 \leq i \leq 8$.

10. (New) The method of claim 1, further comprising converting the stored column sequences according to a pattern characteristic related to each sequence by using the pattern characteristic obtained from the relation between the column sequences;

adding the converted column sequences by slots; and

performing a correlation process of the added result to a previously designed code column.

11. (New) The apparatus of claim 3, wherein the implementing means comprises:

an adder for adding the converted outputs from the memory mapping/addressing block; and

a correlator for performing a correlation process of the added result to a previously designated code column.

12. (New) The method of claim 1, wherein the first correlation function is an auto-correlation function and the second correlation function is a cross-correlation function.

13. (New) The apparatus of claim 3, wherein the first correlation function is an auto-correlation function and the second correlation function is a cross-correlation function.

14. (New) A method for an apparatus receiving a pilot pattern, comprising:

storing pilot pattern sequences demodulated and/or inputted by slots of a frame for at least one of channel estimation or frame synchronization for at least one of uplink or downlilnk channels, wherein the pilot pattern sequences have a relation based on one or both of the following;

(1)
$$R_i(\tau)=\begin{cases}15, & \tau=0\\ -1, & \tau\neq 0\end{cases},\quad i=1,2,\cdots,8$$

where $R_i(\tau)$ is the auto-correlation function of the pilot pattern sequence,

(2)
$$R_{i,j}(\tau)=\begin{cases}-15, & \tau=7\\ 1, & \tau\neq 7\end{cases}$$

$$R_{j,i}(\tau+1)=\begin{cases}-15, & \tau=7\\ 1, & \tau\neq 7\end{cases}$$

where $R_{i,j}(\tau)$ is a cross-correlation function between a pair of pilot pattern sequences and i, j = 1, 2, 3, . . ., 8.

15. (New) An apparatus receiving a pilot pattern comprising:

a memory mapping and/or addressing block for storing pilot pattern sequences inputted and/or demodulated by slots, wherein the pilot pattern sequences have a relation based on one or both of the following:

(1) $$R_i(\tau)=\begin{cases}15, & \tau=0\\ -1, & \tau\neq 0\end{cases}, \quad i=1,2,\cdots,8$$

where $R_i(\tau)$ is the auto-correlation function of the pilot pattern sequence,

(2) $$R_{i,j}(\tau)=\begin{cases}-15, & \tau=7\\ 1, & \tau\neq 7\end{cases}$$

$$R_{j,i}(\tau+1)=\begin{cases}-15, & \tau=7\\ 1, & \tau\neq 7\end{cases}$$

where $R_{i,j}(\tau)$ is a cross-correlation function between a pair of pilot pattern sequences and i, j = 1, 2, 3, . . ., 8.